CSC116 Comprehensive Exercise Team 08 Connect Four

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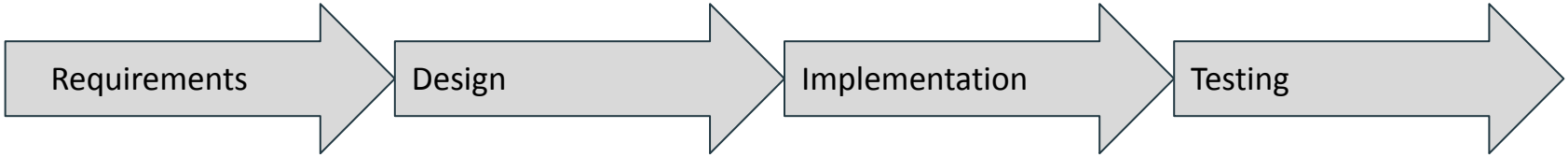
Overall Description

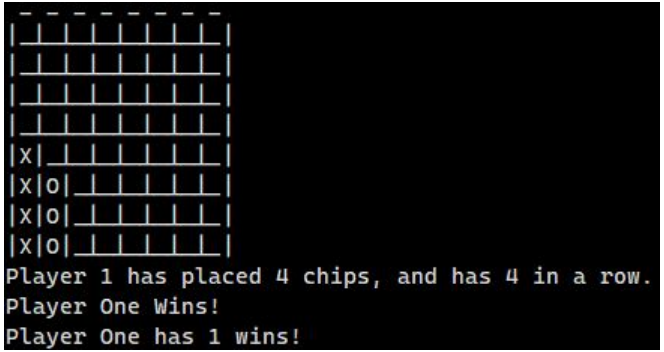
Our project is a game of Connect 4.
The user is asked to input a size for the board.
The board is made up of a square array with a length of size inputted by the user. A winner is declared when a number, half of the array length, of chips of the same type are consecutive.

Process

1. First we read over and understood the project requirements
2. We began to make preliminary designs of the program such as object classes and methods associated with them
3. A rough design was made as a guide for the implementation of the program
4. We implemented the design, changing aspects as needed
5. Testing was done on a prototype of the program and changes were made as needed



Requirement Assumptions



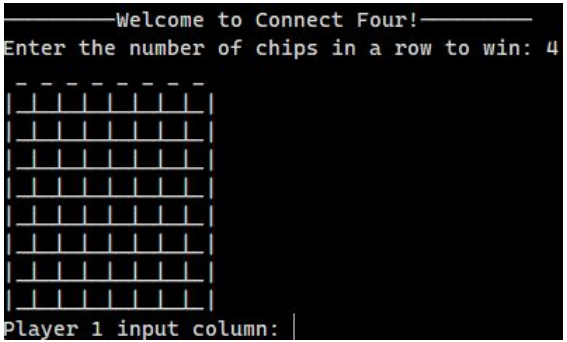
A grid needs to be displayed with the ability to show chips placed.

When one chip type has been placed four times in a row it wins.

A win can be from a vertical, horizontal, or diagonal line.

When a chip is being placed, it can't be placed where another chip has already been placed.

Design



- We decided to make object classes for the chip and the board because this was the most logical way to separate the logic of the game
- The chip class represents each player, who each has an object of this class associated with them
- The board class controls the logic of the game, using methods to drop the chips, check if the column is full, and check the board for a winning game
- These design choices were ideal because it separated the parts of the game into simpler programs that could be used interactively.

Testing

- Boundary values inside and outside of the range were tested to make the correct range was being used
- The grid column being full was tested so that a chip couldn’t be placed, and an empty column was tested so that a chip could be placed
- A test was done for end of game menus, so that the correct messages were displayed, and the user was asked if they wanted a new game or to quit
- The users input when asked for a new game or to quit, was also tested to check that the program knows how to respond to invalid input

Lessons Learned

We learned the importance of keeping track of project requirements when implementing code to fulfill all the requirements.

The importance of this is creating a program that meets project requirements from the start, so no major changes have to be made

We also learned the importance of integration and system testing this is what proves that the code meets a portion of the requirements of this exercise.

The importance of testing is to ensure that your program is operating properly in accordance with project requirements